

(f) The radiotelephone installation must be located in the radiotelegraph operating room or in the room from which the ship is normally steered.

(g)

(g) Demonstration of the radiotelephone installation may be required by Commission representatives to show compliance with applicable regulations.

(h)

(h) The radiotelephone installation must be protected from excessive currents and voltages.

(i)

(i) The radiotelephone installation must be maintained in an efficient condition.

s 80.808 Requirements of reserve installation.

(a)

(a) All reserve radiotelegraph installations must comply with the following conditions, in addition to all other requirements:

(a) (1)

(1) The reserve installation must be capable of being placed in operation within a maximum time of 1 minute.

(a) (2)

(2) The reserve antenna must be installed and protected to ensure proper operation in time of an emergency.

(a) (3)

~~(3) Effective October 14, 1986, the main antenna energized by the reserve transmitter on 500 kHz must produce at one nautical mile a minimum field strength of ten (10) millivolts per meter.~~

(a) (4)

~~(4) The reserve transmitter must meet the requirements of s 80.255.~~

(a) (5)

~~(5) The reserve receiver must receive A1A and A2B emissions on all frequencies within the band 405-535 kHz. It must have headphones. Additionally a loudspeaker may be provided for use in accordance with the provisions of s 80.313. The reserve receiver must be able to operate headphones or a loudspeaker when the receiver RF input is 100 microvolts.~~

(a) (6)

(6) The reserve installation must be capable of being quickly connected with and tuned to the main antenna, and the reserve antenna if one is installed.

(a) (7)

(7) Emergency electric lights, energized solely by the reserve power supply and connected to it through individual fuses must be provided. ~~The emergency electric lights must illuminate the operating controls of the main and reserve radiotelegraph installations and the radio station clock.~~ The emergency lighting circuits must avoid excessive voltage to the emergency lights during the charging of any batteries forming part of the reserve installation. The provisions of this paragraph do not preclude the use of any other power supply for energizing these lights solely as an additional provision. ~~If a separate emergency radiotelegraph operating room is provided, the requirements of this paragraph apply to it.~~

(a) (8)

~~(8) The emergency electric lights must be controlled by two-way switches placed near the main entrance to the radiotelegraph operating room and at the radiotelegraph operating position, in all cases where the distance between these points is greater than 2.4 meters (8 feet). This requirement applies to stations which replace, or initially install the main or reserve radiotelegraph transmitter on and after May 26, 1965.~~

(a) (9)

(9) There must be readily available under normal load conditions a reserve power supply for the reserve installation which must be independent of the propelling power of the ship and of any other electrical system. The reserve power supply must simultaneously energize the reserve transmitter at its required antenna power and the reserve receiver for at least 6 hours continuously under normal working conditions, and energize the automatic-alarm-signal keying device continuously for a period of 1 hour.

(a) (10)

(10) The reserve power supply may be used to energize the following apparatus provided it has adequate capacity:

(a) (10) (i)

(i) ~~The audible warning apparatus included as a component of an approved radiotelegraph auto alarm;~~

(a) (10) (ii)

(ii) The VHF installation required by Subpart R of this chapter simultaneously with the reserve transmitter in the case of distress, urgency and safety communications;

(a) (10) (iii)

(iii) The VHF installation required by Subpart R of this chapter alternately with the reserve transmitter. A switching device must be fitted to ensure alternate operation only in the case of distress, urgency and safety communications;

(a) (10) (iv)

(iv) The radiotelephone alarm signal generator;

(a) (10) (v)

(v) The bridge-to-bridge VHF radiotelephone installation required by Subpart U of this chapter.

(a) (11)

(11) The reserve power supply must be located as near to the reserve transmitter and reserve receiver as is practicable and must comply with all applicable rules and regulations of the United States Coast Guard. The switchboard of the reserve power supply must wherever possible, be situated in the radiotelegraph operating room. If it is not, it must be illuminated.

(a) (12)

(12) All reserve power supply circuits must be protected from overloads.

(a) (13)

(13) Means must be provided for charging any batteries forming a part of the reserve installation, and such batteries must be maintained in a fully charged condition daily while at sea. There must be a device which, during charging of the batteries, gives a continuous indication of the rate and polarity of the charging current.

(a) (14)

(14) The cooling system of each internal combustion engine used as a part of the reserve power supply must be protected to prevent freezing or overheating consistent with the season and route to be traveled by the particular vessel.

(b) (1)

(b) (1) The shipowner, operating company, or station licensee, if directed by the Commission or its authorized representative must demonstrate that the reserve installation satisfies the 6-hour operating requirement of law.

(b) (2)

(2) When the reserve power supply includes a battery, proof of the ability of such battery to operate continuously and effectively for 6 hours can be established by a discharge test over a prescribed period of time, when supplying

power at the voltage required for normal operation to an electrical load as prescribed by paragraph (b) (4) of this section.

(b) (3)

(3) When the reserve power supply includes an engine-driven generator, proof of the adequacy of the engine fuel supply to operate the unit continuously and effectively for 6 hours may be established by measuring the fuel consumption during 1 hour when supplying power, at the voltage required for normal operation, to an electrical load as prescribed by paragraph (b) (4) of this section.

(b) (4)

(4) To determine the electrical load to be supplied by the reserve power supply, the following formula must be used:

(b) (4) (i)

(i) One-half of the reserve transmitter current with the key closed; plus

(b) (4) (ii)

(ii) One-half of the reserve transmitter current with the key open; plus

(b) (4) (iii)

(iii) ~~One sixth of the current of the automatic radiotelegraph alarm signal~~ keying device when this device is energized; plus

(b) (4) (iv)

(iv) Current of the reserve receiver; plus

(b) (4) (v)

(v) Current of emergency lights; plus

(b) (4) (vi)

(vi) Current of the bridge-to-bridge transceiver when connected.

(b) (5)

(5) At the conclusion of the tests specified in paragraphs (b) (2) and (3) of this section, no part of the reserve power supply must have an excessive temperature rise, nor must the specific gravity or voltage of the battery be below the 90 percent discharge point.

s 80.809 Routing of power supply wiring.

The conductors connecting the main power supply to the main installation, the reserve supply to reserve installation and the radar power supply to the ship radar station, must be routed to ensure adequate protection from overload, mechanical injury and be kept clear of electrical grounds.

s 80.810 Use of reserve installation.

The reserve transmitter, and the reserve power supply for the reserve transmitter, are primarily for safety and test communication. This equipment may be used for other communication for a period not to exceed 1 hour per day in the aggregate. The reserve receiver, and the reserve power supply for the reserve receiver if a battery, may be used at any time to maintain a safety watch if such use will not reduce the capabilities of the reserve power supply to energize the associated component or components of the reserve installation for at least 6 consecutive hours.

80.811 Tests of reserve installation and automatic-alarm-signal keying device.

(a)

(a) The condition of the reserve installation and of the automatic alarm signal keying device must be determined (with the exception noted in paragraph (b) of this section) prior to the vessel's departure from each port and on each day the vessel is outside of a harbor or port. If the vessel is in two or more ports within one day, the required tests need be made only once. If the vessel is in port for less than one day, the required test for that day may be made before arrival or after departure. The following tests must be made and the results entered in the radiotelegraph station log:

(a) (1)

(1) Check the reserve power supply as follows:

(a) (1) (i)

(i) Test battery charging circuits for correct polarity and charging rate:

(a) (1) (ii)

(ii) In the case of lead-acid batteries, determine the specific gravity of the electrolyte.

(a) (1) (iii)

(iii) In the case of other types of batteries, take voltage readings under normal battery load.

(a) (1) (iv)

(iv) When an engine-driven generator is used, check the quantity of fuel in the fuel tank;

(a) (2)

(2) Test the emergency lighting circuits and emergency electric lights by actual operation;

(a) (3)

(3) Test the reserve receiver, while energized by the reserve power supply, by actual operation and comparison of received signals with similar signals received by the main receiver;

(a) (4)

(4) On days when not used for communication, the reserve transmitter energized by the reserve power supply must be tested by actual operation when connected to the main antenna, an artificial antenna or a reserve antenna.

(a) (5)

(5) If installed, the reserve antenna must be used at least once each voyage, noting antenna currents;

(a) (6)

(6) Test the automatic-alarm-signal keying device for correct timing adjustment of the keying mechanism. Do not transmit when making this test.

(b)

(b) In the case of vessels loading or discharging flammable, unstable or dangerous cargo, or while berthed at oil terminals or in other comparable areas, predeparture transmitter tests need not be made. In such cases, the provisions of paragraph (a)(4) of this section, in connection with predeparture tests, do not apply if a suitable explanation is entered in the radio station log.

§ 80.812 Automatic-alarm-signal keying device.

~~The required radiotelegraph station includes one or more devices, of a~~
~~certificated by the Commission in accordance with Subpart F of this part capable~~
~~of automatically operating the normal keying circuits of a required~~
~~radiotelegraph transmitter to transmit the international radiotelegraph alarm~~
~~signal.~~

~~s 80.813 Installation of automatic alarm signal keying device.~~

~~(a)~~

~~(a) The automatic radiotelegraph alarm signal keyer must be installed in the radiotelegraph operating room. It must be possible to key, nonsimultaneously, the main transmitter and the reserve transmitter, and to permit the device to be taken out of operation at any time in order to permit immediate manual transmitter operation. Only one control must be provided for each automatic alarm signal keying device. This control must be located in the radiotelegraph operating room.~~

~~(b)~~

~~(b) The required automatic radiotelegraph alarm signal keying device must be capable of operating efficiently for a continuous period of 1 hour when energized solely by the reserve power supply.~~

s 80.814 Radiotelegraph auto alarm.

An auto alarm which is installed and used on board a cargo ship of the United States pursuant to the provisions of s 80.315 comprises a complete receiving, selecting and warning device of a certificated by the Commission in accordance with section 3(x) of the Communications Act, capable of being actuated automatically by intercepted radio frequency waves forming the international radiotelegraph alarm signal.

s 80.815 Installation of radiotelegraph auto alarm.

Installation of a radiotelegraph auto alarm must comply with the following conditions.

(a)

(a) The auto alarm must be located in the radiotelegraph operating room and be installed and protected to insure proper operation. The radiotelegraph auto alarm system must be operated from the radiotelegraph operating room. A switch must be provided to:

(a) (1)

(1) Transfer the main antenna from all other equipment and connect it to the radiotelegraph auto alarm receiver and place the auto alarm in service and, back to the original configuration. A voltmeter must be provided for the determining that the supply voltages are within the operating limits.

(b)

(b) The auto alarm must give an audible warning in the radiotelegraph operating room, in the radio officer's cabin, and on the navigating bridge. The alarm must operate continuously after the alarm has been actuated by a radiotelegraph alarm signal or by failure of the system, until manually turned off. Only one switch for stopping the alarm is authorized, and this must be located in the radiotelegraph operating room and be capable of manual operation only. However ships operating under the general exemption of s 80.836(c) may install an additional switch on the bridge for stopping the warning apparatus.

(c)

(c) Failure of the auto alarm if of a type approved prior to July 23, 1951, to function normally due to prolonged interference must operate a visual indicator on the bridge. The type and method of installation of such visual indicator must comply with the requirements of the U.S. Coast Guard.

- (d)
- (d) The power supply voltage of an auto alarm must be maintained within definite upper and lower limits. The power supply must have an auxiliary device which:
- (d) (1)
- (1) Will energize the alarm if this power supply fails or its voltage exceeds the limits specified for the particular type of auto alarm involved; or
- (d) (2)
- (2) Will automatically connect the auto alarm to an auxiliary power supply, the voltage of which is within the specified limits.

s 80.817 Tests of radiotelegraph auto alarm.

- (a)
- (a) The radio officer must at least once every 24 hours while the ship is in the open sea:
- (a) (1)
- (1) Test the auto alarm by using the testing device to determine whether the auto alarm will respond to not less than 4 nor more than 12 consecutive dashes having an approximate duration of 4 seconds and an approximate spacing of 1 second.
- (a) (2)
- (2) Determine the proper functioning of the auto alarm receiver while connected to its normal antenna, by actual operation and comparison of received signals with similar signals received on 500 kHz by the main receiver.
- (b)
- (b) If the auto alarm is not in proper operating condition, the radio officer must report that fact to the master or officer on watch on the bridge.
- (c)
- (c) A statement that the tests specified in this section have been made, and the results of such tests, must be inserted in the radiotelegraph station log.

s 80.818 Direction finding and homing equipment.

Each compulsory ship of 1,600 gross tons or over whose keel was laid:

- (a)
- (a) Prior to May 25, 1980, must be equipped with radio direction finding apparatus in operating condition and approved by the Commission during an inspection.
- (b)
- (b) On or after May 25, 1980, must be equipped with radio direction finding apparatus having a homing capability in accordance with s 80.824.

s 80.819 Requirements for radio direction finder.

- (a)
- (a) The radio direction finding apparatus must:
- (a) (1)
- (1) Be capable of receiving signals A1A, A2B and R2B emission, on each frequency within the band 285-515 kHz assigned by the Radio Regulations for distress and direction finding and for maritime radio beacons, and be calibrated

to take bearings on such signals from which the true bearing and direction may be determined; and

(a) (2)

(2) Possess a sensitivity, sufficient to permit the taking of bearings on a signal having a field strength of 50 microvolts per meter.

(b)

(b) The calibration of the direction finder must be verified by check bearings or by a further calibration whenever any changes are made in the physical or electrical characteristics or the position of any antennas, and whenever any changes are made in the position of any deck structures which might affect the accuracy of the direction finder. In addition, the calibration must be verified by check bearings at yearly intervals. A record of the calibrations, and of the check bearings made of their accuracy and the accuracy of the check bearings must be kept on board the ship for a period of not less than 1 year.

s 80.820 Auxiliary receiving antenna.

An auxiliary receiving antenna must be provided when necessary to avoid unauthorized interruption or reduced efficiency of the required watch because the normal receiving antenna is not available because a radio direction finder on board the vessel is operated.

s 80.821 Installation of direction finder.

(a)

(a) The direction finder must be located to minimize interference from noise.

(b)

(b) The direction finder antenna system must be erected so that the determination of bearings will not be hindered by the proximity of other antennas, cranes, wire halyards, or large metal objects.

s 80.822 Contingent acceptance of direction finder calibration.

When the required calibration can not be made before departure from a harbor or port for a voyage in the open sea, the direction finder may be tentatively approved on condition that the master certifies in writing that the direction finder will be calibrated by a competent technician.

s 80.823 Check bearings by authorized ship personnel.

The requirement for calibration by check bearings is met if:

(a)

(a) The required verification by check bearings are made not more than 90 days prior to the date of the annual detailed inspection of the radiotelegraph station;

(b)

(b) The verification consists of a comparison of simultaneous visual and radio direction finder bearings. At least one comparison bearing must be taken in

each quadrant, within plus or minus 20 degrees from the following bearings relative to the ship's heading:

45 degrees; 135 degrees; 225 degrees; 315 degrees;

(c)

(c) The verification shows the visual bearing relative to the ship's heading and the difference between the visual and radio direction finder bearing, and the date each check bearing is taken.

s 80.824 Homing facility requirements.

(a)

(a) Direction finding equipment used on compulsory vessels whose keel was laid on or after May 25, 1980, must additionally have a homing facility which is:

(a) (1)

(1) Capable of operating with A1A, A2B, H2B and H8E emission on any frequency in the band 2167-2197 kHz;

(a) (2)

(2) Capable of taking direction finding bearings on the radiotelephone distress frequency 2182 kHz without ambiguity of sense within an arc of 30 degrees on either side of the bow;

(a) (3)

(3) Installed with due regard to CCIR Recommendation 428-2:

(a) (4)

(4) Sufficiently sensitive, in the absence of interference, to take bearings on a signal having a field strength of 25 microvolts per meter;

(a) (5)

(5) Capable of determining its accuracy by comparison of visual or calculated bearings and homing facility bearings. Comparisons must be made at -30, 0 and +30 degrees relative to the ships heading to show that the correct sense is indicated.

s 80.825 Radar installation requirements and specifications.

(a)

(a) Radar installations on board ships that are required by the Safety Convention or the U.S. Coast Guard to be equipped with radar must comply with either the document referenced in paragraph (a)(1) of this section or the applicable document referenced in paragraphs (a)(2) through (a)(4) of this section. These documents are incorporated by reference in accordance with 5 U.S.C. 552(a). The documents contain specifications, standards and general requirements applicable to shipboard radar equipment and shipboard radar installations. For purposes of this part, the specifications, standards and general requirements stated in these documents are mandatory irrespective of discretionary language. Radar documents are available for inspection at the Commission Headquarters in Washington, DC, or may be obtained from the Radio Technical Commission for Maritime Services (RTCM), P.O. Box 19087, Washington, DC 20036.

(a) (1)

(1) Radar installed on ships of 500 gross tons and upwards on or after July 1, 1988, must comply with the provisions of RTCM Paper 133-87/SC 103-33 including Appendix A. Title: "RTCM Recommended Performance Specification for a General Purpose Navigational Radar Set for Oceangoing Ships of 500 Gross Tons and Upwards for New Radar Installations." Title of Appendix A: "General Purpose

Shipborne Navigational Radar Set for Oceangoing Ships Design and Testing Specifications." Document originally approved by RTCM August 15, 1985 and revised May 15, 1987.

(a) (2)

(2) Radar installed on ships of 1,600 gross tons and upwards on or before April 27, 1981, must comply with the provisions of Volume II of RTCM Special Committee No. 65 Final Report; Part II. Title: "Performance Specification for a General Purpose Navigational Radar Set for Oceangoing Ships of 1,600 Tons Gross Tonnage and Upwards for Ships Already Fitted." Document approved by RTCM July 18, 1978; effective as FCC requirement on April 27, 1981.

(a) (3)

(3) Radar installed on ships of 1,600 gross tons and upwards after April 27, 1981 and before July 1, 1988, must comply with the provisions of Volume II of RTCM Special Committee No. 65 Final Report with Change 1 entered; Part I including Appendix A. Title: "Performance Specification for a General Purpose Navigational Radar Set for Oceangoing Vessels of 1,600 Tons Gross Tonnage and Upwards for New Radar Installations." Title of Appendix A: "General Purpose Shipborne Navigational Radar Set for Oceangoing Ships Design and Testing Specifications." Document approved by RTCM July 18, 1978; effective as FCC requirement on April 27, 1981.

(a) (4)

(4) Ships between 500 and 1,600 gross tons constructed on or after September 1, 1984, with radar installed before July 1, 1988, must comply with Regulation 12, Chapter V of the Safety Convention and with the provisions of Inter-Governmental Maritime Consultative Organization (IMCO) [Now International Maritime Organization (IMO)] Resolution A.477(XII). Title: "Performance Standards for Radar Equipment." Adopted by IMCO November 19, 1981.

(b)

(b) For ships of 10,000 gross tons or more and any other ship that is required to be equipped with two radar systems, each of these systems must be capable of operating independently and must comply with the specifications, standards and general requirements established by paragraph (a) of this section. One of the systems must provide a display with an effective diameter of not less than 340 millimeters (13.4 inches) (16-inch cathode ray tube). The other system must provide a display with an effective diameter of not less than 250 millimeters (9.8 inches) (12-inch cathode ray tube).

(c)

(c) Recommendations for tools, test equipment, spares and technical manuals are contained in Part IV of Volume III of the RTCM SC-65 Final Report approved by RTCM July 18, 1978.

s 80.826 Interior communication systems.

(a)

(a) ~~An interior communication system must be provided between the bridge of the ship and the radiotelegraph operating room in all cases where the radiotelegraph operating room does not adjoin or open onto the navigating bridge structure.~~ An interior communication system must also be provided between the bridge and the location of the radio direction finding apparatus whenever the latter is not located on the bridge or within any compartment adjoining or opening onto the navigating bridge structure. If the operating position of the reserve radio installation is not located in the room normally used for operating the main radio installation, an interior communication system must be separately provided between the bridge and each of these radio operating positions.

(b)

(b) ~~If a vessel has more than one location from which it is normally controlled and steered, the interior communication system between the radiotelegraph operating room and bridge must include communication to each such location. The~~ existence at a location of all of the following factors will require that a point of communication be established there: (1) A steering wheel; (2) a compass; (3) an engine order telegraph; (4) control of the whistle; and (5) a wheelhouse enclosure.

(c)

(c) Paragraph (b) of this section does not apply to locations established solely for emergency use in event of failure of the normal steering facilities or locations used solely while docking or maneuvering a ship while in port or for brief periods while navigating the ship in close quarters on inland waters.

s 80.827 Requirements for interior communication systems.

The interior communication systems required by s 80.826 must provide two-way calling and voice communication, be independent of any other communication system in the ship, and be of a type approved by the United States Coast Guard. The location and termination of individual systems is subject to approval by the Commission.

s 80.828 Radiotelegraph station clock.

A working clock equipped with a sweep seconds hand and having a dial not less than 12.7 cm (5 inches) in diameter, the face of which is marked to indicate the silence periods prescribed for the radiotelegraph service by the International Radio Regulations, must be provided. It must be securely mounted in the radiotelegraph operating room in such a position that the entire dial can be clearly observed by the radio officer from the normal radiotelegraph operating position, from the operating position where the international radiotelegraph alarm signal would ordinarily be transmitted by hand, and from the position used for testing the auto alarm (if installed). If a separate emergency radiotelegraph operating room is provided, the requirements of this section apply to it also.

s 80.829 Survival craft nonportable radiotelegraph installation.

(a)

(a) A survival craft nonportable radiotelegraph installation required by law to be provided in a motor lifeboat must include the following components as a minimum:

(a) (1)

(1) A transmitting and receiving antenna and antenna accessories,

(a) (2)

(2) An artificial antenna for testing purposes;

(a) (3)

(3) A transmitter with keying arrangements for use of radiotelegraphy, an associated radio receiver with headphones, and a suitable device for converting from the power supply battery voltage to the voltages used by the transmitter and receiver;

(a) (4)

- (4) A power supply;
- (a) (5)
- (5) A device for a ground connection to the water when the lifeboat is afloat.
- (b)
- (b) Components of a survival craft nonportable radiotelegraph installation specified in paragraph (a)(2) of this section must be certificated of s 80.263 and s 80.265
- (c)
- (c) The radiotelegraph equipment must be installed in a cabin large enough to accommodate both the equipment and the person using it. The operation of the radiotelegraph installation must not be interfered with by the survival craft engine while it is running, whether or not a battery is on charge.
- (d)
- (d) The antenna must be a single wire inverted L type with a horizontal section of the maximum practicable length and a height above the mean waterline of not less than 6 meters (20 feet), and must be so designed that it can be quickly erected and utilized by a person in the lifeboat while afloat.
- (e)
- (e) The ground system must comply with the following requirements:
- (e) (1)
- (1) The radio installation when installed in a metal hull lifeboat must be grounded to the hull of the lifeboat. The ground connection must be physically located in a position where it is inaccessible to the normal movement of occupants or accessories in the lifeboat;
- (e) (2)
- (2) The radio installation when installed in a lifeboat having a nonmetallic hull must be grounded to a bare plate or strips of corrosion resistant metal having a total area of at least 6 square feet and located on the hull of the lifeboat below the waterline.
- (f)
- (f) When the lifeboat is afloat the installation must be capable of developing an antenna current such that the product of the maximum height of the antenna above the mean surface of the water, expressed in meters, and the r.m.s. antenna current on the frequency 500 kHz, expressed in amperes, is not less than 9.6.

s 80.830 Power supply for survival craft nonportable radiotelegraph installation.

- (a)
- (a) The power supply for the survival craft nonportable radiotelegraph installation must consist of a battery capable of operating the survival craft radiotelegraph installation for at least 6 hours continuously under normal working conditions.
- (b)
- (b) The battery may power equipment other than the radiotelegraph installation (except that it must not be used to supply power to any engine starting motor or ignition system) provided such additional use will not adversely affect the required capabilities of the battery. All circuits connected to the battery must be independently fused.
- (c)
- (c) The battery must be kept charged at all times while at sea. The charging of the battery must not require its removal from the survival craft in which it is installed. The necessary charging equipment must not interfere with the launching of the survival craft, and must be easily and quickly removable. The charging circuit for the battery must be routed through the radiotelegraph

operating room, and include a device located in the radiotelegraph operating room which will give continuous indication of the polarity and the rate of charge.

(d)

(d) Installation must provide for charging of the battery by means of a generator on the survival craft engine.

(e)

(e) Subject to approval of the United States Coast Guard, the battery must be mounted in a suitable container that will provide protection from salt water spray and also allow proper ventilation.

s 80.831 Survival craft portable radiotelegraph equipment.

(a)

(a) Survival craft portable radiotelegraph equipment required by law to be provided must be certificated by the Commission as capable of meeting the provisions of s 80.263 and s 80.265.

(b)

(b) The equipment must be stowed in the radio room, bridge or a protected location near a lifeboat and be readily accessible for transfer to a lifeboat. However, in tankers of 3,000 gross tons and over in which lifeboats are fitted amidships and aft, this equipment must be kept in a suitable place in the vicinity of those lifeboats which are farthest away from the ship's main transmitter.

(c)

(c) Equipment for totally enclosed lifeboats must meet the extra requirements specified in s 80.265.

s 80.832 Tests of survival craft radio equipment.

(a)

(a) Except for emergency position indicating radio beacons and two-way radiotelephone equipment, inspections and tests of survival craft radio equipment must be conducted by the licensee at weekly intervals while the ship is at sea or, if a test or inspection has not been conducted within a week prior to its departure, within 24 hours prior to the ship's departure from a port. The inspection and tests must include operation of the transmitter connected to an artificial antenna and determination of the specific gravity or voltage under normal load of any batteries.

(b)

(b) When the ship is in a harbor or port of the United States an authorized representative of the Commission may require:

(b) (1)

(1) Inspection and test of the survival craft radio equipment in the survival craft afloat, including an operational test of the transmitter and receiver connected to the required antenna to determine that the equipment is in operating condition;

(b) (2)

(2) Demonstration in accordance with s 80.808 that a battery used as a part of the survival craft nonportable radio installation is capable of energizing the installation for the required 6 hours.

(c)

(c) The results of the inspections and test must be made known to the master, and be entered in the ship's radio station log, or in the ship's log if the ship is not provided with a radio station.

s 80.833 Class S survival craft emergency position indicating radiobeacons (EPIRB's).

- (a)
- (a) Survival craft emergency position indicating radiobeacons, Class S, ~~required to comply with Title 46 of the Code of Federal Regulations~~ must be certificated to meet the provisions of s 80.1059.
- (b)
- (b) The Class S EPIRB must be stowed in the survival craft.
- (c)
- (c) The Class S EPIRB must be tested at intervals not to exceed twelve months.
- (d)
- (d) Batteries must be replaced after the date specified in s 80.1053(e), or after the transmitter has been used in an emergency situation, whichever is earlier.

s 80.834 Survival craft portable two-way radiotelephone.

- (a)
- (a) Survival craft portable two-way radiotelephone transceivers must meet the provisions of s 80.271.
- (b)
- (b) The equipment must be stowed in the radio room, on the bridge or in a location readily accessible for transfer to life boats when not being used by shipboard personnel to satisfy the vessel's operational requirements.
- (c)
- (c) When not in routine use the survival craft two-way radiotelephone transceivers must be operationally tested once a week. Operational test should be conducted with equipment separated as far as practical and in the case of UHF equipment must include tests on the frequency 457.525 MHz.
- (d)
- (d) All survival craft two-way radiotelephones associated with a ship must operate in the same frequency band (VHF or UHF).

s 80.835 Ship and survival craft station spare parts, tools, instruction books, circuit diagrams and testing equipment.

- (a)
- (a) Each ship station must be provided with such spare parts, tools, testing equipment, instruction books and circuit diagrams as will enable the radiotelegraph installation and survival craft station to be maintained in working condition while at sea. Each ship station licensee must compile a list of spare parts, tools, test equipment and circuit diagrams it considers necessary for compliance with this requirement. This list must be available at inspection. Spare parts for the survival craft station must be kept with that station. Other items must be located convenient to the radio room.
- (b)

(b) The testing equipment must include an instrument or instruments for measuring A.C. volts, D.C. volts and ohms.

s 80.836 General exemptions.

(a)

(a) General small passenger vessel exemptions, applicable to certain U.S. passenger vessels of less than 100 gross tons, are contained in subpart S of this part.

(b)

(b) All newly constructed U.S. cargo vessels of 1600 gross tons and upward are exempt from the radiotelegraph and radio direction finding provisions of Part II of Title III of the Communications Act when navigated on sea trials, not more than 150 nautical miles from the nearest land, if the following conditions are met:

(b) (1)

(1) The vessel is equipped with a radiotelephone capable of operation on 2182 kHz and equipped with a radiotelephone alarm signal generator. The vessel may carry an additional portable radiotelephone, located in the wheelhouse, equipped with a radiotelephone alarm signal generator to satisfy the radiotelephone alarm signal generator requirement;

(b) (2)

(2) The radio direction-finding apparatus is calibrated during the sea trials;

(b) (3)

(3) A continuous watch is maintained in 2182 kHz whenever the radiotelephone is not being used for authorized traffic during the sea trials; and

(b) (4)

(4) The local FCC Engineer in Charge is advised of the dates and routes of the sea trials.

(c)

(c) Prior to February 1, 1999, cargo ships of 1600 gross tons and upward are exempt from the radiotelegraph requirements of Part II of Title III of the Communications Act, if the following criteria are met:

(c) (1)

(1) The ship operates on domestic voyages only. For purposes of this paragraph, the term domestic voyages includes ports in Alaska, U.S. possessions in the Caribbean, and along the coasts of the 48 contiguous states, so long as the vessel does not make port at a foreign destination;

(c) (2)

(2) The routes of the voyage are never more than 150 nautical miles from the nearest land; and,

(c) (3)

(3) The ship complies fully with all of the following conditions. The ship must:

(c) (3) (i)

(i) Be equipped with a satellite ship earth station providing both voice and telex, which has been certificated for GMDSS use;

(c) (3) (ii)

(ii) Be equipped with a VHF and MF radiotelephone installation which complies fully with subpart R of this part and has the additional capability of operating on the HF frequencies listed in s 80.369(b) for distress and safety communications (this capability may be added to the MF radiotelephone installation);

(c) (3) (iii)

(iii) Be equipped with a narrow-band direct-printing radiotelegraph system with SITOR meeting the requirements of s 80.219;

(c) (3) (iv)

(iv) Be equipped with at least two VHF transceivers capable of being powered by the reserve power supply (one of the VHF transceivers may be the VHF required by paragraph (c) (3) (ii) of this section);

(c) (3) (v)

(v) Be equipped with a Category 1, 406 MHz EPIRB meeting the requirements of s 80.1061;

(c) (3) (vi)

(vi) Be equipped with a NAVTEX receiver meeting the requirements of s 80.1101(c) (1);

(c) (3) (vii)

(vii) Be equipped with three two-way VHF radiotelephone apparatus and two radar transponders in accordance with s 80.1095;

(c) (3) (viii)

(viii) In addition to the main power source, be equipped with an emergency power source which complies with all applicable rules and regulations of the U.S. Coast Guard (the satellite earth station, the narrow-band direct-printing equipment and the 500 kHz autoalarm receiver must be capable of being powered by the main and emergency power sources);

(c) (3) (ix)

(ix) Be equipped with a 500 kHz autoalarm receiver and a means of recording or decoding any distress signal received for relay to the Coast Guard or a public coast station;

(c) (3) (x)

(x) Participate in the AMVER system when on voyages of more than twenty-four hours and have the capability of operating on at least four of the AMVER HF duplex channels;

(c) (3) (xi)

(xi) Carry at least one licensed operator to operate and maintain all the ship's distress and safety radio communications equipment in accordance with ss 80.159(c) and 80.169; and,

(c) (3) (xii)

(xii) Maintain a continuous watch on 2182 kHz and 156.8 MHz, in accordance with s 80.305(b), when navigated.

(d)

(d) Subject to a determination by the United States Coast Guard pursuant to Public Law No. 104-104, 110 Stat. 56 (1996) at Section 206, each U.S. passenger vessel and each U.S. cargo vessel of 1,600 gross tons and upward is exempt from the radiotelegraph provisions of part II of title III of the Communications Act, provided that the vessel complies fully with the requirements for the Global Maritime Distress & Safety System (GMDSS) contained in subpart W of this part and obtains either a Safety Certificate or endorsement as described in s 80.1067.

Note to paragraph (d): In a letter to the Commission, dated March 13, 1996, the United States Coast Guard noted that it may rely on the Safety Certificate or endorsement described in s 80.1067 as prima facie evidence that the GMDSS has been installed and found to be operating properly. The Coast Guard also stated that it retains the authority for ensuring overall vessel safety and compliance with all applicable domestic and international laws, regulations and treaties.

(e)

(e) These exemptions may be terminated at any time without hearing if, in the Commission's discretion, the need for such action arises.

s 80.851 Applicability.

(a)

(a) The radiotelephone requirements of Part II of Title III of the Communications Act apply to cargo ships of 300 gross tons and upward but less than 1600 gross tons. The radiotelephone requirements of the Safety Convention apply to passenger ships irrespective of size and cargo ships of 300 gross tons and upward on international voyages. These ships are required to carry a radiotelephone installation complying with this subpart.

(b)

~~(b) Until February 1, 1999, the inspection of all cargo vessels equipped with a radiotelephone installation operated on domestic or international voyages must be conducted by an FCC-licensed technician in accordance with s 80.59 once every 12 months. If the ship passes the inspection the technician will issue a Safety Certificate. Cargo Ship Safety Radio Certificates may be obtained from the Commission's National Call Center--(888) 225-5322--or from its forms contractor.~~

s 80.853 Radiotelephone station.

(a)

(a) The radiotelephone station is a radiotelephone installation and other equipment necessary for the proper operation of the installation.

(b)

(b) The radiotelephone station must be installed to insure safe and effective operation of the equipment and to facilitate repair. Adequate protection must be provided against the effects of vibration, moisture, and temperature.

(c)

(c) The radiotelephone station and all necessary controls must be located at the level of the main wheelhouse or at least one deck above the ship's main deck.

(d)

(d) The principal operating position of the radiotelephone station must be in the room from which the ship is normally steered while at sea. In installations on cargo ships of 300 gross tons and upwards but less than 500 gross tons on which the keel was laid prior to January 1, 1965, the location of the principal operating controls may be in a room adjoining and opening into the room from which the vessel is normally steered while at sea. If the station can be operated from any location other than the principal operating position, a positive means must be provided at the principal operating position to take full control of the station.

(e)

(e) The use of a independent communication system between the principal operating position and all other operating locations is acceptable as a method for taking control at the principal operating position. For stations first placed in service on or after June 1, 1956 the use of this method for taking control at the principal operating position is acceptable only for operating locations in the chartroom or master's quarters.

s 80.854 Radiotelephone installation.

The radiotelephone installation includes:

(a)

(a) A radiotelephone transmitter;

- (b)
- (b) A receiver as specified in s 80.858(a);
- (c)
- (c) A radiotelephone distress frequency watch receiver specified in s 80.269;
- (d)
- (d) A main source of energy;
- (e)
- (e) A reserve source of energy, when required by s 80.860(a);
- (f)
- (f) An antenna system.

s 80.855 Radiotelephone transmitter.

- (a)
- (a) The transmitter must be capable of transmission of ~~H3E~~ and J3E emission on 2182 kHz, and J3E emission on 2638 kHz and at least two other frequencies within the band 1605 to 3500 kHz available for ship-to-shore or ship-to-ship communication.
- (b)
- (b) The duty cycle of the transmitter must permit transmission of the international radiotelephone alarm signal.
- (c)
- (c) The transmitter must be capable of transmitting clearly perceptible signals from ship to ship during daytime under normal conditions over a range of 150 nautical miles.
- (d)
- (d) The transmitter complies with the range requirement specified in paragraph (c) of this section if:
 - (d) (1)
 - (1) The transmitter is capable of being matched to actual ship station transmitting antenna meeting the requirements of s 80.863;
and
 - (d) (2)
 - (2) The output power is not less than 60 watts peak envelope power for ~~H3E~~ and J3E emission on the frequency 2182 kHz and for J3E emission on the frequency 2638 kHz into either an artificial antenna consisting of a series network of 10 ohms resistance and 200 picofarads capacitance, or an artificial antenna of 50 ohms nominal impedance. An individual demonstration of the power output capability of the transmitter, with the radiotelephone installation normally installed on board ship, may be required.
- (e)
- (e) The transmitter must provide visual indication whenever the transmitter is supplying power to the antenna.
- (f)
- (f) The transmitter must be protected from excessive currents and voltages.
- (g)
- (g) A durable nameplate must be mounted on the transmitter or made an integral part of it showing clearly the name of the transmitter manufacturer and the type or model of the transmitter.
- (h)
- (h) An artificial antenna must be provided to permit weekly checks of the automatic device for generating the radiotelephone alarm signal on frequencies other than the radiotelephone distress frequency.

s 80.856 Automatic radiotelephone alarm signal generator.

The transmitter must be equipped with an international radiotelephone alarm signal generator certificated by the Commission. See s 80.221.

s 80.857 Installation of automatic radiotelephone alarm signal generator.

The controls of the automatic radiotelephone alarm signal generator required by s 80.856 must be located at the principal radiotelephone operating position only. The controls must permit instant use of this device to modulate the required transmitter and permit the device to be taken out of operation at any time so that the transmitter may be immediately voice modulated for transmission of a distress call and message.

s 80.858 Radiotelephone receiver.

(a)

(a) The receiver required by s 80.854(a) of this part must be capable of reception of ~~H3E~~ and J3E emissions on the radiotelephone distress frequency. The receiver must be capable of reception of J3E emissions on 2638 kHz and the receiving frequencies associated with the transmitting frequencies authorized pursuant to s 80.855(a).

(b)

(b) In addition to the receiver required by paragraph (a) of this section, a radiotelephone distress frequency watch receiver meeting the technical standards of s 80.269 must be provided.

(c)

(c) One or more loudspeakers capable of being used to maintain the distress frequency (2182 kHz) watch at the principal operating position and at any other place where the listening watch is performed must be provided.

(d)

(d) The receiver required by paragraph (a) of the section must:

(d) (1)

(1) Have a sensitivity of 50 microvolts;

(d) (2)

(2) Be capable of operation when energized by the main source of energy, and by the reserve source of energy if a reserve source is required by s 80.860(a);

(d) (3)

(3) Be protected from excessive currents and voltages;

(d) (4)

(4) Be provided with a nameplate showing the name of the receiver manufacturer and the type or model.

(e)

(e) The sensitivity of a receiver is the strength in microvolts of a signal, modulated 30 percent at 400 cycles per second, required at the receiver input to produce an audio output of 50 milliwatts to the loudspeaker with a signal-to-noise ratio of at least 6 decibels. Evidence of a manufacturer's rating or a demonstration of the sensitivity of a required receiver computed on this basis must be furnished upon request of a Commission representative.

s 80.859 Main power supply.

(a)

(a) The main power supply must simultaneously energize the radiotelephone transmitter at its required antenna power and the required receivers. Under this load condition the voltage of the main power supply at the radiotelephone input terminals must not deviate from its rated potential by more than 10 percent on ships completed on or after July 1, 1941, nor by more than 15 percent on ships completed before that date.

(b)

(b) Means must be provided for charging any batteries used as a main power supply. A continuous indication of the rate and polarity of the charging current must be provided during charging of the batteries.

s 80.860 Reserve power supply.

(a)

(a) When the main power supply is not on the same deck as the main wheelhouse or at least one deck above the vessel's main deck, a reserve power supply must be provided and must be so situated. The location of the reserve power supply must be located as near to the required transmitter and receivers as practicable and meet all applicable rules and regulations of the United States Coast Guard.

(b)

(b) The reserve power supply must be independent of the propelling power of the ship and of any other electrical system, and must simultaneously energize the radiotelephone transmitter at its required antenna power, the required receivers, the emergency light and the automatic radiotelephone alarm signal generator. The reserve power supply must be available at all times.

(c)

(c) The reserve power supply may be used to energize the bridge-to-bridge radiotelephone and the VHF radiotelephone installation required by s 80.871.

(d)

(d) All circuits connected to the reserve power supply must be protected from overloads.

(e)

(e) Means must be provided for charging any batteries used as a reserve power supply. A continuous indication of the rate and polarity of the charging current during charging of the batteries must be provided.

(f)

(f) The cooling system of each internal combustion engine used as a part of the reserve power supply must be adequately treated to prevent freezing or overheating consistent with the season and route to be traveled by the particular vessel involved.

(g)

(g) The reserve power supply must be available within 1 minute.

s 80.861 Required capacity.

If the main power supply or the reserve power supply provided for the purpose of complying with s 80.859 and s 80.860 consists of batteries, the batteries must have sufficient reserve capacity available at all times while the vessel is leaving or attempting to leave a harbor or port for a voyage in the open sea, and while being navigated in the open sea outside of a harbor or port, to

permit operation of the radiotelephone transmitter and the required receivers for at least 6 hours continuously under normal working conditions.

s 80.862 Proof of capacity.

(a)

(a) When directed by the Commission or its authorized representative, the station licensee must prove that the requirements of s 80.861 are met.

(b)

(b) Proof of the ability of a battery used as a main or reserve source to operate continuously for 6 hours can be established by a discharge test over a prescribed period of time, when supplying power at the voltage required for normal and operation to an electrical load as prescribed by paragraph (d) of this section.

(c)

(c) When the reserve power supply is an engine-driven generator, proof of the adequacy of the engine fuel supply to operate the unit continuously for 6 hours can be established by measuring the fuel consumption for 1 hour when supplying power, at the voltage required for normal operation, to an electrical load as prescribed by paragraph (d) of this section.

(d)

(d) In determining the electrical load to be supplied, the following formula must be used:

(d) (1)

(1) One-half of the current of the required transmitter at its rated power output.

(d) (2)

(2) One fourth of the current of the automatic radiotelephone alarm signal generator; plus

(d) (3)

(3) Current of receiver; plus

(d) (4)

(4) Current of emergency light(s); plus

(d) (5)

(5) Current of the bridge-to-bridge transceiver when connected.

(e)

(e) At the conclusion of the test specified in paragraphs (b) and (c) of this section, no part of the main or reserve power supply must have an excessive temperature rise, nor must the specific gravity or voltage of any battery be below 90 percent discharge point of the fully charged value.

s 80.863 Antenna system.

(a)

(a) An antenna system must be installed which is as nondirectional and as efficient as is practicable for the transmission and reception of radio ground waves over seawater. The installation and construction of the required antenna must insure operation in time of emergency.

(b)

(b) If the required antenna is suspended between masts or other supports liable to whipping, a safety link which, under heavy stress, will operate to greatly reduce such stress without breakage of the antenna, the halyards, or other antenna-supporting elements, must be installed.

s 80.868 Card of instructions.

A card of instructions giving a clear summary of the radiotelephone distress procedure must be securely mounted and displayed in full view of the principal operating position.

s 80.869 Test of radiotelephone station.

Unless the normal use of the required radiotelephone station demonstrates that the equipment is operating, a test communication on a required or working frequency must be made each day the ship is navigated. When this test is performed by a person other than the master and the equipment is found to be defective the master must be promptly notified.

s 80.870 Survival craft radio equipment.

- (a)
- (a) A Class S survival craft emergency position indicating radiobeacon, (EPIRB) ~~required to be carried to comply with Title 46 of the Code of Federal Regulations~~ must meet the provisions of s 80.833.
- (b)
- (b) A survival craft two-way radiotelephone apparatus must meet the provisions of s 80.834.

s 80.871 VHF radiotelephone station.

- (a)
- (a) All passenger ships irrespective of size and all cargo ships of 300 gross tons and upwards subject to part II of title III of the Communications Act or to the Safety Convention are required to carry a VHF radiotelephone station complying with this subpart. Ships subject only to the Communications Act may use a VHF radiotelephone installation meeting the technical standards of the Bridge-to-Bridge Act to satisfy the watch requirements of s 80.305(a)(3) if the equipment can transmit and receive on 156.800 MHz.
- (b)
- (b) The VHF radiotelephone station must be installed to insure safe and effective operation of the equipment and facilitate repair. It must be protected against vibration, moisture and temperature.
- (c)
- (c) The principal operating position of the radiotelephone station must be in the room from which the ship is normally steered while at sea.
- (d)
- (d) The radiotelephone stations on ships subject to Part II of Title III of the Communications Act must be capable of operating on the frequency 156.800 MHz and in other respects meet the requirements of s 80.143. The radiotelephone stations on ships subject to the Safety Convention must be capable of operating in the simplex mode on the ship station transmitting frequencies specified in the frequency band 156.025 MHz to 157.425 MHz and in the semiduplex mode on the two frequency channels specified in the following table:

(c)

(c) When an electrical ground connection is used as an element of the antenna system, the connection must be efficient.

s 80.864 Emergency electric lights.

(a)

(a) Emergency electric light(s) must be installed to illuminate the operating controls of the radiotelephone installation at the principal operating position, the card of instructions, and the radiotelephone station clock if the latter is not self-illuminated.

(b)

(b) The emergency electric light(s) must be energized from the reserve power supply, if a reserve power supply is required. In cases where a reserve power supply is not required, the emergency lights must be energized independently of the system which supplies the normal lighting.

s 80.865 Radiotelephone station clock.

A clock having a face of at least 12.7 cm (5 in.) in diameter must be mounted in a position that can be observed from the principal operating position.

s 80.866 Spare antenna.

A spare transmitting antenna completely assembled for immediate erection must be provided. If the installed transmitting antenna is suspended between supports, this spare antenna must be a single-wire transmitting antenna of the same length and must also include suitable insulators.

s 80.867 Ship station tools, instruction books, circuit diagrams and testing equipment.

(a)

(a) Each ship station must be provided with such tools, testing equipment, instruction books and circuit diagrams to enable the radiotelephone installation to be maintained in efficient working condition while at sea. Each ship station licensee must compile a list of spare parts, tools, test equipment and circuit diagrams it considers necessary for compliance with this requirement. This list must be available at inspection. The Commission may consider equipment manufacturer lists of recommended spare parts, tools, test equipment, and repair circuit diagrams in determining compliance with this subsection. These items must be located convenient to the radio room.

(b)

(b) The testing equipment must include an instrument or instruments for measuring A.C. volts, D.C. volts and ohms.

Transmitting frequencies (MHz)		
Channel designators	Ship station	Coast station
60	156.025	160.625
01	156.050	160.650
61	156.075	160.675
02	156.100	160.700
62	156.125	160.725
03	156.150	160.750
63	156.175	160.775
04	156.200	160.800
64	156.225	160.825
05	156.250	160.850
65	156.275	160.875
06	156.300
66	156.325	160.925
07	156.350	160.950
67	156.375	156.375
08	156.400
68	156.425	156.425
09	156.450	156.450
69	156.475	156.475
10	156.500	156.500
11	156.550	156.550
71	156.575	156.575
12	156.600	156.600
72	156.625
13	156.650	156.650
73	156.675	156.675
14	156.700	156.700
74	156.725	156.725
15	156.750	156.750
75	([FN1])	([FN1])
16	156.800	156.800
76	([FN1])	([FN1])
17	156.850	156.850
77	156.875
18	156.900	161.500
78	156.925	161.525
19	156.950	161.550
79	156.975	161.575
20	157.000	161.600
80	157.025	161.625
21	157.050	161.650
81	157.075	161.675
22	157.100	161.700
82	157.125	161.725
23	157.150	161.750
83	157.175	161.775
24	157.200	161.800
84	157.225	161.825

25	157.250	161.850
85	157.275	161.875
26	157.300	161.900
86	157.325	161.925
27	157.350	161.950
87	157.375	161.975
28	157.400	162.000
88	157.425	162.025

FN1 Guard band.

s 80.872 The VHF radiotelephone installation.

The VHF radiotelephone installation includes:

- (a)
- (a) A VHF radiotelephone transmitter,
- (b)
- (b) A VHF radiotelephone receiver,
- (c)
- (c) A power supply,
- (d)
- (d) An antenna system.

s 80.873 VHF radiotelephone transmitter.

(a)

(a) The transmitter must be capable of transmission of G3E emission on 156.300 MHz and 156.800 MHz, and on frequencies which have been specified for use in a system established to promote safety of navigation. Vessels in waters of other Administrations are required to communicate on any channel designated by that Administration for navigational safety in the bands specified in s 80.871(d).

(b)

(b) The transmitter must be adjusted so that the transmission of speech normally produces peak modulation within the limits of 75 percent and 100 percent.

(c)

(c) The transmitter must deliver a carrier power between 8 and 25 watts into a 50 ohm effective resistance. Provision must be made for reducing the carrier power to a value between 0.1 and 1.0 watts.

(d)

(d) The transmitter complies with the power output requirements specified in paragraph (c) of this section when:

(d) (1)

(1) The transmitter is capable of being adjusted for efficient use with an actual ship station transmitting antenna meeting the requirements of s 80.876; and

(d) (2)

(2) The transmitter has been demonstrated capable, with normal operating voltages applied, of delivering not less than 8 watts of carrier power into 50 ohms effective resistance over the frequency band specified in s 80.871(d). An individual demonstration of the power output capability of the transmitter, with the radiotelephone installation normally installed on board ship, may be required; and

(d) (3)

(3) It is certificated as required by Subpart F of this part.

s 80.874 VHF radiotelephone receiver.

(a)

(a) The receiver used for providing the watch for navigational safety required by s 80.313 must be certificated by the Commission and capable of effective reception of G3E emission on the frequencies required by s 80.871(d) when connected to the antenna specified in s 80.876.

(b)

(b) The receiver must have a usable sensitivity of 0.5 microvolts.

(c)

(c) The receiver must deliver adequate audio output power to be heard in the ambient noise level likely to be expected on board ships with a loudspeaker and/or a telephone handset.

(d)

(d) In the simplex mode when the transmitter is activated the receiver output must be muted.

s 80.875 VHF radiotelephone power supply.

(a)

(a) There must be readily available for use under normal load conditions a power supply sufficient to simultaneously energize the VHF transmitter at its required antenna power, and the VHF receiver. Under this load condition the voltage of the source of energy at the power input terminals of the VHF radiotelephone installation must not deviate from its rated value by more than 10 percent on ships completed on or after March 1, 1957, nor by more than 15 percent on ships completed before that date.

(b)

(b) When the power supply for the VHF radiotelephone installation consists of batteries, they must be installed in the upper part of the ship, secured against shifting with motion of the ship, capable of operating the installation for 6 hours, and accessible with not less than 26 cm (10 in.) head room.

(c)

(c) Means must be provided for charging any rechargeable batteries used in the ship's VHF radiotelephone installation. There must be provided a device which, during charging of the batteries, will give a continuous indication of the charging current.

(d)

(d) The VHF radiotelephone installation may be connected to the reserve power supply of a compulsorily fitted radiotelephone or radiotelegraph installation.

s 80.876 VHF radiotelephone antenna system.

A vertically polarized nondirectional antenna must be provided for VHF radiotelephone installations. The construction and installation of this antenna must insure proper operation in an emergency.

s 80.877 Controls and indicators required for VHF radiotelephone installations.

The controls and indicators used on equipment of the VHF radiotelephone installation must meet the following standards:

- (a)
- (a) The size of controls must easily permit normal adjustment. The function and the setting of the controls must be clearly indicated.
- (b)
- (b) Controls must be illuminated to permit satisfactory operation of the equipment.
- (c)
- (c) Means must be provided to reduce to extinction any light output from the equipment which could affect safety of navigation.
- (d)
- (d) An on/off switch must be provided for the entire installation with a visual indication that the installation is switched on.
- (e)
- (e) The equipment must indicate the channel number, as given in the Radio Regulations, to which it is tuned. It must allow the determination of the channel number under all conditions of external lighting. Channel 16 must be distinctively marked.
- (f)
- (f) The receiver must have a manual volume control and a squelch control.
- (g)
- (g) If the external controls are on a separate control unit and more than one such control unit is provided, the one on the bridge must have priority over the others. When there is more than one control unit, indication must be given to the other(s) that the transmitter is in operation.

s 80.879 Radar installation requirements and specifications.

Ships of 500 gross tons and upwards that are constructed on or after September 1, 1984, must comply with the radar installation requirements and specifications contained in s 80.825 of this part.

s 80.901 Applicability.

The provisions of Part III of Title III of the Communication Act require United States vessels which transport more than six passengers for hire while such vessels are being navigated on any tidewater within the jurisdiction of the United States adjacent or contiguous to the open sea, or in the open sea to carry a radiotelephone installation complying with this Subpart. The provisions of Part III do not apply to vessels which are equipped with a radio installation for compliance with Part II of Title III of the Act, or for compliance with the Safety Convention, or to vessels navigating on the Great Lakes.

s 80.903 Inspection of radiotelephone installation.